

**WE CLAIM:**

1        1. An imaging system, comprising:  
2            an imaging optics for forming an image of an object, said imaging optics  
3            having a  
4            focal length that varies with wavelength of light that illuminates the object;  
5            an image receiving unit for receiving an image of said object formed by said  
6            imaging optics; and  
7            a light source for sequentially illuminating said object with light of different  
8            ones of a plurality of wavelengths for providing a plurality of images of said object  
9            received by said image receiving unit.

1        2. The imaging system according to Claim 1, wherein said imaging optics  
2        has a focal length that varies inversely with a wavelength of light that illuminates the  
3        object

1        3. The imaging system according to Claim 2, wherein said imaging optics  
2        comprises a combined refractive/diffractive lens.

1        4. The imaging system according to Claim 1, wherein said image  
2        receiving unit comprises an array of photosensors.

1        5. The imaging system according to Claim 4, wherein said array of  
2        photosensors comprises a CMOS detector array.

1           6.       The imaging system according to Claim 1, wherein said light source  
2   comprises a plurality of separate light sources, each of said plurality of separate light  
3   sources illuminating said object with light of a different wavelength.

1           7.       The imaging system according to Claim 6, wherein said plurality  
2   of separate light sources comprises a plurality of light emitting diodes.

1           8.       The imaging system according to Claim 6, wherein said plurality  
2   of separate light sources comprises from about three to about five light sources.

1           9.       The imaging system according to Claim 1, and further including a  
2   processor for selecting a desired image among said plurality of received images.

1           10.      The imaging system according to Claim 9, wherein said desired image  
2   comprises a best-focused image among said plurality of received images.

1           11.      The imaging system according to Claim 2, wherein an object  
2   distance between said imaging lens and said object varies from between about 5  
3   inches to about 20 inches, and wherein said plurality of wavelengths comprise a  
4   plurality of wavelengths between about 450nm and about 980nm.

1           12.    The imaging system according to Claim 11, wherein said object  
2    comprises an iris of an eye.

1           13.    The imaging system according to Claim 11, wherein said object  
2    comprises a fingerprint.

1           14.    The imaging system according to Claim 1, wherein said imaging  
2    system comprises a digital still camera.

- 1 15 A method for providing a desired image of an object, comprising:
- 2 providing an imaging system that includes a light source for sequentially
- 3 illuminating an object to be imaged with light of different ones of a plurality of
- 4 wavelengths, and an imaging lens having a focal length that varies with a wavelength
- 5 of the light that illuminates the object;
- 6 operating said light source to sequentially illuminate said object with said light
- 7 of different ones of a plurality of wavelengths to form a plurality of images of said
- 8 object; and
- 9 selecting a desired image among said plurality of formed images.

1           16.     The method according to Claim 15, wherein said selecting comprises  
2     selecting a best-focused image among said plurality of formed images.

1           17. The method according to Claim 15, wherein said operating said  
2 light source comprises sequentially illuminating said object with light of a plurality of  
3 separate light sources, each of said plurality of separate light sources illuminating said  
4 object with light of a different wavelength.

1            18.     The method according to Claim 15, wherein said imaging lens has a  
2     focal length that varies inversely with a wavelength of the light that illuminates the  
3     object.

1            19.        The method according to Claim 18, wherein an object distance  
2        between said imaging lens and said object varies from between about 5 inches to  
3        about 20 inches, and wherein said plurality of wavelengths comprise a plurality of  
4        wavelengths between about 450nm and about 980nm.

1           20.    The method according to Claim 15, wherein said forming comprises  
2    forming said plurality of images on a photosensor array.

1           21.    The method according to Claim 15, wherein said operating said  
2    light source comprises operating said light source for sequentially illuminating said  
3    object at a rate of 60 images per second.

1           22.    The method according to Claim 15, wherein said imaging system  
2    comprises a digital still camera.